

ABSTRACT

A process uses pressure changes and a pressure compensation factor to estimate the rate at which neutral atoms are implanted. While implanting a first wafer using a first pressure compensation factor, the rate at which ions are implanted is determined. The first wafer is moved radially with respect to an ion beam while implanting ions into the first wafer so as to achieve a uniform total dose based on the rate at which ions are implanted and the estimated rate at which neutral atoms are implanted. The pressure is determined while implanting the first wafer, determining the pressure. A second pressure compensation factor is selected, that would have achieved a uniform rate of implanted ions plus implanted neutral atoms across a surface of the first wafer. The second pressure compensation factor is different from the first pressure compensation factor. The second pressure compensation factor is used to implant a second wafer. The second wafer is tested by forming a sheet resistance contour map. If the sheet resistant contour map shows uniform resistance across the wafer, the second pressure compensation factor is used to implant wafers subsequent to the second wafer.